

METHOD FOR MEASURING MOLTEN LAYER THICKNESS OF MOLD POWDER ON MOLTEN STEEL SURFACE IN MOLD OF CONTINUOUS CASTING

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Abstract

PURPOSE: To measure molten layer thickness of mold powder at good accuracy by detecting molten steel surface level with a vortex flow type range finder, removing a part of the mold powder which is not yet melted, detecting the molten layer surface level of the mold powder with a laser beam type range finder and calculating the difference between both.

CONSTITUTION: In inner part of a mold 1, the surface at meniscus 2a of the molten steel 2 is covered with the molten mold powder 3, and further the upper face thereof is covered with the mold powder 4 which is not yet melted. The vortex flow type range finder 5 detects the level to the meniscus surface 2a of the molten steel 2 under non-contacting condition. The laser beam type range finder 6 detects the level to the mold powder molten layer 3 under non-contacting condition. At the time of irradiating the molten layer 3 with the laser beam while injecting gas from a gas injection chamber 7 on the surface of the mold powder 4 which is not yet melted through a gas injection hole 7b, the laser beam detects the molten layer 3 surface level of the mold powder through an aperture part 8a and the gas injection hole 7b. A computing element 9 calculates the level signal detected with both range finders. By this method, the molten layer thickness of the mold powder can be stably measured at good accuracy.

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